



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,237	03/12/2004	Arya Reza Behzad	BP3313	8857
34399	7590	06/30/2006	EXAMINER	
GARLICK HARRISON & MARKISON P.O. BOX 160727 AUSTIN, TX 78716-0727			TRINH, SONNY	
			ART UNIT	PAPER NUMBER
			2618	
DATE MAILED: 06/30/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,237

Applicant(s)

BEHZAD, ARYA REZA

Examiner

Sonny TRINH

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-29 is/are allowed.
- 6) ☒ Claim(s) 1-21 and 30-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/12/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1- 9, 11-21, 30-33** are rejected under 35 U.S.C. 102(b) as being anticipated by Manku (U.S. Patent Number 6,232,848 B1).

Regarding **claim 1**, with reference to figure 2B and description (column 3 line 20 to column 4 line 57), Manku discloses a Radio Frequency (RF) power amplifier comprising: a transconductance stage adapted to receive an input RF voltage signal and to produce an output RF current signal (figure 2B); a cascode stage adapted to receive an input RF current signal and to produce an output RF voltage signal (figure 2B); and an AC coupling element coupled between the transconductance stage and the cascode stage and operable to AC couple the output RF current signal of the transconductance stage as the input RF current signal of the cascode stage (figure 2B).

Regarding **claim 2**, Manku further discloses that the transconductance stage comprises a linear transconductance element and a circuit element that together couple between a transconductance stage voltage supply and a ground (figure 2B).

Regarding **claim 3**, Manku further discloses that the linear transconductance element comprises a transistor; and the circuit element comprises an inductor (figure 2B).

Regarding **claims 4, and 7**, since Manku discloses that the bipolar transistor can be replaced by a MOSFET (column 4 line 63-67), therefore the terminals of the bipolar transistor can be regarded as the terminals of the MOSFET. (Note that Applicant discloses that the transistor may be one of a metal oxide silicon transistor, a field effect transistor, and a bipolar junction transistor (paragraph [0010]). With respect to **claim 4**, Manku further discloses that a first terminal of the inductor couples to the transconductance stage voltage supply (figure 2B, L1 coupled to +V'); a second terminal of the inductor couples to a drain of the transistor (figure 2B); a source of the transistor couples to the ground and the input RF voltage signal couples to a gate of the transistor (figure 2B, Vin connected to Q1). With respect to **claim 7**, Maku further discloses a gate of the transistor is adapted to receive a controllable cascode bias voltage (figure 2B, VB').

Regarding **claim 5**, Manku further discloses that the transistor is a bipolar junction transistor (figure 2B, columns 3-4, specifically lines 34-37 of column 4).

Regarding **claim 6**, Manku further discloses the cascode stage comprises a first circuit element, a transistor, and a second circuit element coupled between a cascode stage voltage supply and a ground (figure 2B).

Regarding **claim 8**, Manku further discloses the first circuit element comprises a first inductor (figure 2B, ZL); and the second circuit element comprises a second inductor (figure 2B, L2).

Regarding **claims 9, 17**, since Manku discloses that the bipolar transistor can be replaced by a MOSFET (column 4 line 63-67), therefore the terminals of the bipolar transistor can be regarded as the terminals of the MOSFET, therefore figure 2B shows a first terminal of the first inductor couples to the cascode stage voltage supply (ZL connected to +V'); a second terminal of the first inductor couples to a drain of the transistor (see connection between ZL and Q2); a first terminal of the second inductor couples to a source of the transistor (see connection between L2 and Q2); a second terminal of the second inductor couples to the ground (L2 to ground); a gate of the transistor is biased by a cascode bias voltage (VB'); and the output RF voltage signal is produced at the drain of the transistor (figure 2B).

Regarding **claims 11, 19**, Manku further discloses that the transconductance stage voltage supply differs from the cascode stage voltage supply (figure 7, column 4 specifically lines 50-57).

Regarding **claims 12, 20**, Manku further discloses that the transconductance stage voltage supply and the cascode stage voltage supply are at approximately the same voltage level (figure 2B, both voltages are +V')..

Regarding **claims 13, 21**, Manku further discloses that the AC coupling element comprises a capacitor (figure 2B, C12).

Regarding **claims 14-16**, these claims are the combination of claims 1-7 and are therefore rejected for the same reasons.

Regarding **claims 30-33**, these claims merely reflect the method claim as opposed to the apparatus claim of claims 1, 11-12 and are therefore rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 10, 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Manku.

Regarding claims 10 and 18, Manku discloses the invention but does not explicitly disclose that the output RF voltage signal has an operational range extending from less than the ground to greater than the cascode stage voltage supply. However, since the basic structure of the RF power amplifier disclosed by Manku (figure 2) is basically the same as the one disclosed by Applicant in paragraph [0011]. Therefore, it is obvious that the RF power amplifier of Manku is capable of operating and has an operational range extending from less than the ground to greater than the cascode stage voltage supply.

Allowable Subject Matter

3. **Claims 22-29** are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding **claim 22**, the applied references fail to disclose or render obvious the claimed limitations, specifically wherein the a Radio Frequency (RF) power amplifier comprising: a differential transconductance stage adapted to receive a differential input RF voltage signal and to produce a differential output RF current signal; a differential cascode stage adapted to receive a differential input RF current signal and to produce a differential output RF voltage signal; and a differential AC coupling element coupled between the differential transconductance stage and the differential cascode stage and operable to AC couple the differential output RF current signal of the differential transconductance stage as the differential input RF current signal of the differential cascode stage.

Claims 23-29 are allowed by virtue of their dependency on claim 22.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

6/20/06


SONNY TRINH
PRIMARY EXAMINER